APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

On Party Unity, by V. M. Chernyy, 64 pp.

pp. [redacted], pamphlet, O Vedinstve Partii, Moscow, 1958, pp 3-64.

[redacted] 661-B

[redacted]
Fol - Communist Party Doctrine
May 59

86,748

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Investigation of the Aqueous Properties of Peat by Means of Radioactive Isotopes, by M. P. Volarovich, N. V. Churayev, B. Ya. Minkov, 8 pp.

RUSSIAN, per, Kolloid Zhur, Vol XIX, No 2, 1957, pp 159-166.

Consultants Bureau

Sci - Chem

Jan 59

79,416

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Research on the Motion of Water in Peat Under Laboratory and Field Conditions by Means of Radioactive Isotopes, by M. P. Volarovitch, N. V. Churayev, B. A. Minkov,

RUSSIAN, [illegible], Trudy Vses Nauch Tekh Konf Primenen Radioaktiv i Stabil Izotopov i Izluchenii v Narod Khoz i Nauke, 1957, Vol IV, 1958, pp 76-81.

AEC Tr-4206

141,064

3cl - Engr
24 Feb 61

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Investigation of the Degree of Dispersion of [illegible],
by M. P. Volarovich, N. V. Churaby, 6 pp.

RUSSIAN, bimo per, Kolloid Zhur, Vol XVII, No 3,
May-Jun, 1955, pp 200-205. CIA C 29499

Consultants Bureau

Scientific - Chemistry
Nov 55 CRS/DMC

28, 86 U

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Theory of a Sedimentometer for the Analysis of Peat Suspensions, by N. V. Churayev, 6 pp.

RUSSIAN, bimo per, Kolloid Zhur, Vol XVI, No 3, USSR, May/Jun 1954, pp 220-226. CIA D 167134

Consultants Bureau

USSR

Scientific - Chemistry

CTS 65/Feb 1955

21,362

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Deformation of the Surface Layer of a Metal During Oxidation, by P. A. Dankov, P. V. Chuyev, 8 pp.

Chuyev

RUSSIAN, per, Dok Ak Nauk SSSR, Vol 73, 1950, pp. 1221-1224. (See Farnborough, Hants: Royal Aircraft Establishment. Lib Tr No 363.)

Science Museum Lib No 51/0655 — London

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Studies in the Field of Chloro Derivatives of Hydrocarbons of the Aliphatic Series. III. Chlorination of 1,2- and 2,3-Dichlorobutanes, by D. V. Tishchenko, A. Churbakov,

RUSSIAN, per, Zhur Obshchei Khim, Vol VI, No 10, 1936. pp 1593-1596.

ATS RJ-2102

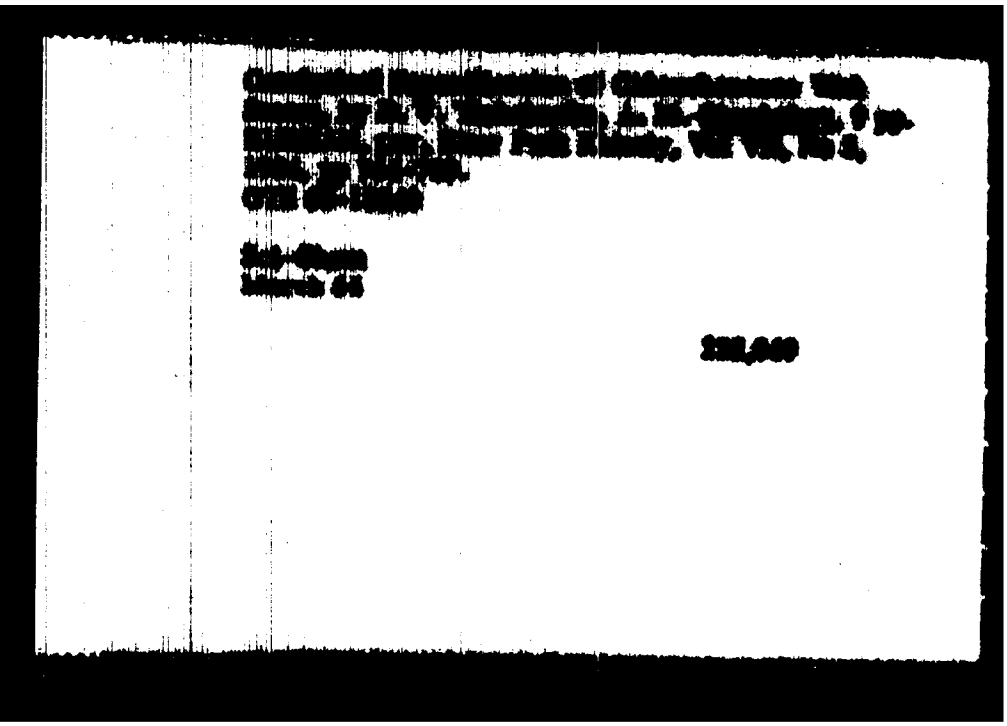
Sci - Chem

May 60

115,395

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4



APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

CHURBAKOV, A. N. (Deceased), Kirov Pedagogical Institute of Pskov

Hydrolysis of 1,2,3-Trichlorobutane under Pressure in the Presence of Potassium Carbonate

Zhur Obshch Khim, Vol XIX, No 2, 1949 (Feb), pp 277-279

Consultants Bureau Translation

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

X-Ray Investigation of Potassium Polyuranates, by
L. M. Kovba, T. I. Churbakova, 5 pp.

RUSSIAN, per, Zhur Strukturnoy Khim, Vol II,
No 5, 1961, pp 585-590.

CB

Sci
13 Jul 62 202,592

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

(NY-3000)

New Machines, by I. S. Churbanov, 23,pp.

RUSSIAN, per, Traktory i Sel'khozmashiny, No 7, 1961, pp 27-33.

JPRS 10538

USSR

Econ

173, 573

Nov 61

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

[redacted]

Machines for Harvesting, Cleaning
Grain, by T. S. Churbanov. 23 p.

[redacted]
No. 1, 1960, pp 35-37.

[redacted]

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

[redacted]

R-900 (DC-2700/1).

Test Analysis of the Sk-3 Self-Propelled Combine and Its Modifications, by I. S. Churbanov, 20 pp.

RUSSIAN, per, Traktory i Sel'khozmashiny, No 3, Mar 1958, pp 13-19.

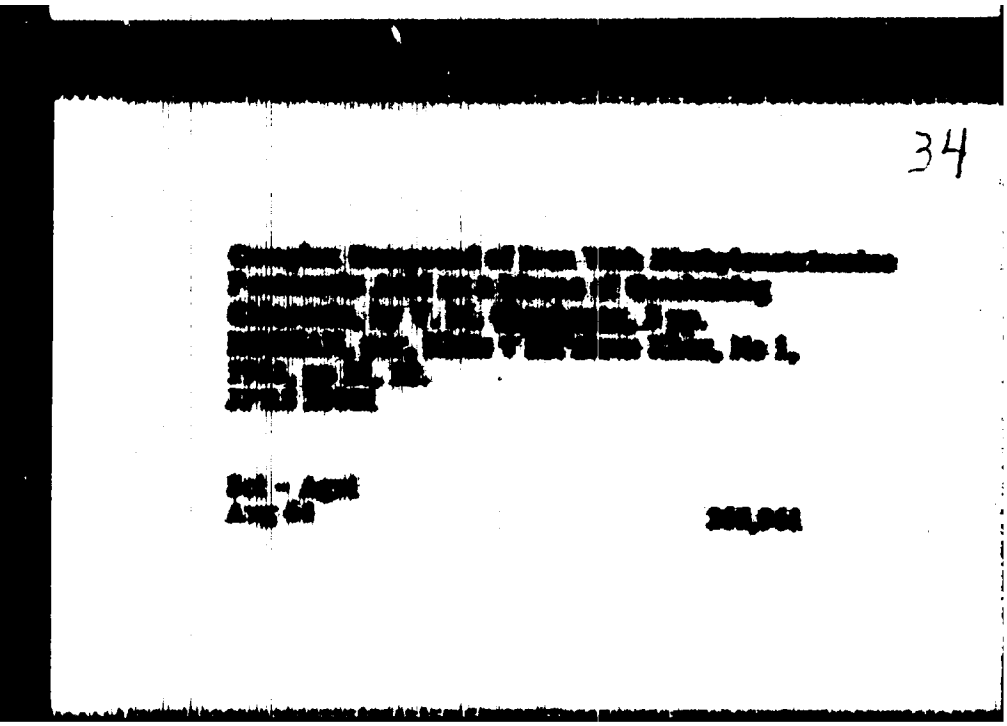
JPRS-849-D

USSR
Econ
Aug 59

94,268

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4



APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

[redacted]

(L-3[illegible]/61)

One Form of Equations of Supersonic Gas [illegible]
S. [illegible] Chaplygin; 6 pp.

RUSSIAN, per, Iz Ak Nauk SSSR, Otdel Tekh Nauk,
Mekh i Mash, No 3, May/Jun 1959, pp 20[illegible]-23[illegible].

JPRS-L-11[illegible]-N

[illegible]
Tec 60

[redacted]

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

[redacted]

[illegible] by A. M. Zhukov, Y. M. [illegible]
[illegible] Chemistry. 1961

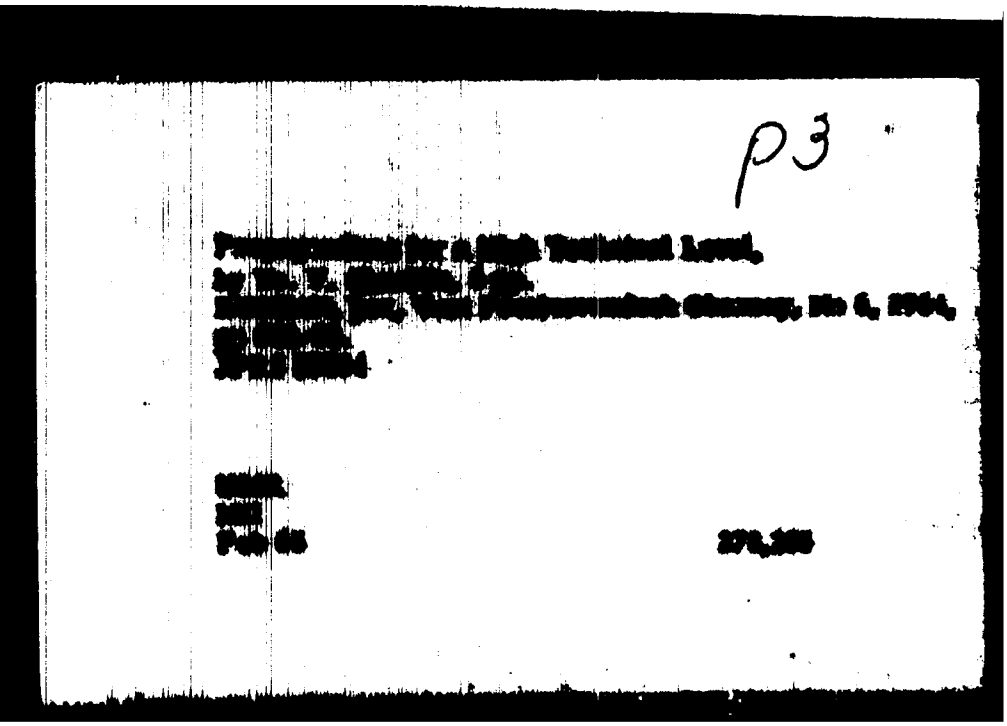
[illegible], per, Spektroskopiya [illegible]
[illegible] pp 169-170.

[illegible]

[illegible]

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4



APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Hemorrhagic nephro-nephritis, by Churilov et al

RUSSIAN, bk

*Pergamon Institute

info from Bucans, 23 May 58

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Prophylaxis of Hemorrhagic Nephroso-Nephritis, by A. A. Smorodintsev, I. S. Al'tshuler, M. I. Dunaevskiy, N. V. Kisilev, A. V. Chumilov, V. Darkshevich, 1 p.

Full Translation

RUSSIAN, pamphlet, Etiologiya i Klinika Gemorragicheskog Nefroso-Nefrita, publ by Medgiz, 1944.

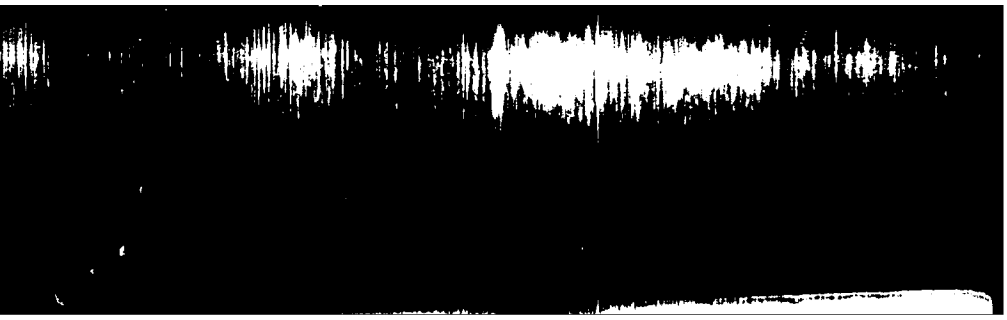
800 Tr

12,776

Scientific - Medicine Feb 52 CTS

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4



APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Clinical Symptomatology of Experimental Hemorrhagic Nephroso-Nephritis, by A. A. Smorodintsev, I. S. Al'tshuler, M. I. Dunaevskiy, M. V. Kisilev, A. V. Churilov, V. Darakhevich, 9 pp.

Full Translation

RUSSIAN, pamphlet, Etiologiya i Klinika Gemorragicheskog Nefrozo-Nefrita, publ by Medgiz, [illegible] 1944.

12,775

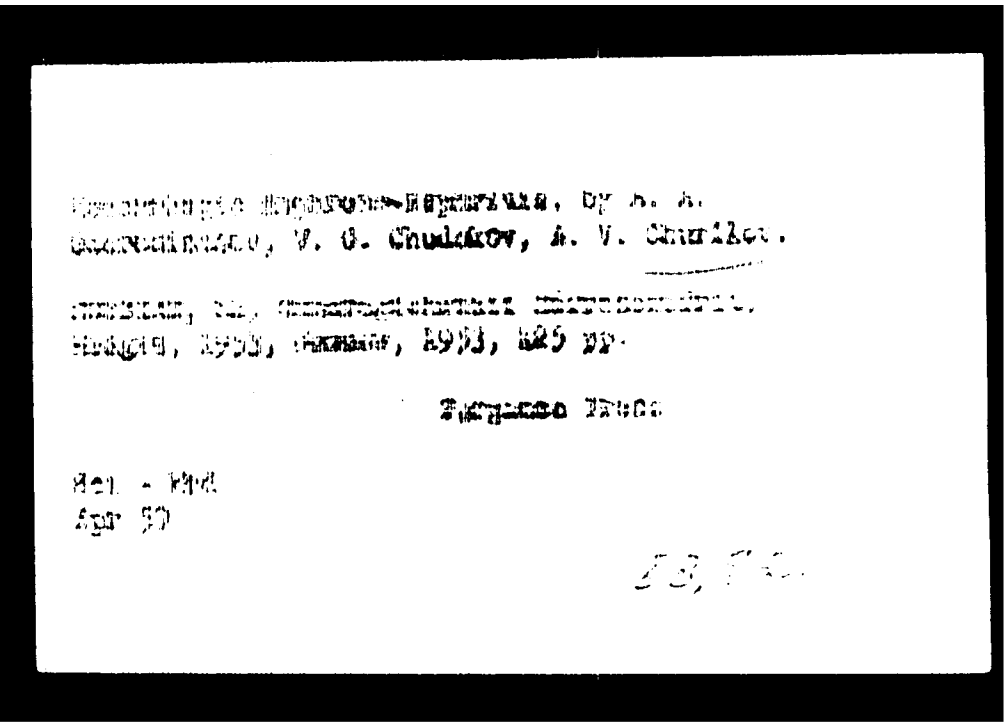
800 Tr

Scientific - Medicine

Feb 52 CTS

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4



APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Hemorrhagic nephrose-nephritis, by
Smorodintsev, V. G. Chudakov, A. V. Churilov.
22 pp.

RUSSIAN, bk, Hemorrhagic Nephrose-Nephritis,
publ by Medgiz, 1953, pp 16-24, 21, 95, 96,
96-98. CIA 9006743

NIH
40, 354

USSR
Mm Sci - Medicine
Nov 56 CTS

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Stefan Valeryanovich Vishovskiy, by I. E. Ryshikov, A. V. Churilov.

RUSSIAN, per, Zhur Mikrobiol, Epidemiol i Immunobiol, No 12, 1953, pp 83-85.

22,778

USDA

Scientific - Miscellaneous
USSR - Biographic

Apr 55 OTS

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

(NY-5330)

Mechanization of Production Processes at Mail Transfer Branches, by D. M. Churilov, 7 pp.

RUSSIAN, per, Vestnik Svyazi, No 8, 1954.

JPRS 7112

Sci

Feb 61

1110.704

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

(FTD 2[illegible]72) .

Mechanization of Operations in a Mail Transport Office, by D. M. Churilov,

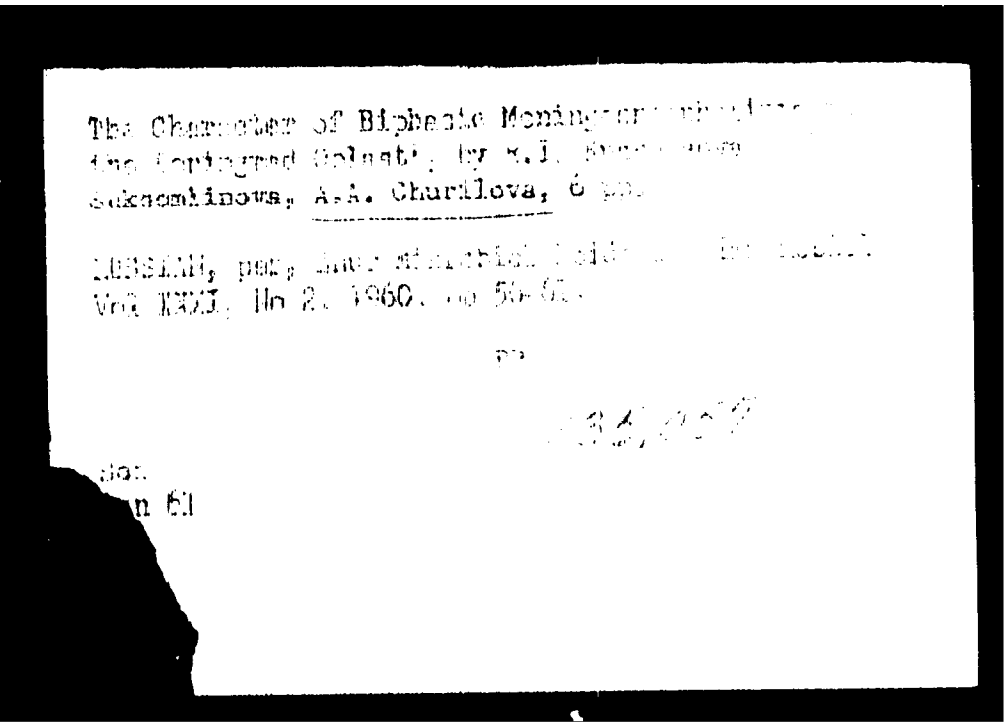
RUSSIAN, no per, Vest Svyazi, No 8 (173), Moscow, Aug 195[illegible], pp 23-24.

[illegible]CIA

USSR
Econ - Communications

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4



The Character of Biphenic Meningeal [illegible]
the Isolated Colony, by N.I. [illegible]
Sukhomlinova, A.A. Churilova, 6 pp.

[illegible], pod. Akad. meditsin. nauk [illegible]
Vol XXXI, No 2, 1960, pp 58-62.

[illegible]

[illegible]
n 61

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

The 250th Anniversary of the Birth of M. V. Lomonosov, by V. V. Churilova.

RUSSIAN, per, Avtomat Svarka, No 11, 1961, pp 95-.

BWRA

Sci

Oct 62

214,097

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

An Apochromatic Catadioptric System to Replace a Parabolic Mirror, by V. N. Churilovskiy, K. I. Gol'dis, 11 pp.

RUSSIAN, per, Izvestiya Vysshyikh Uchebnyikh Zavedeniy MVISSO SSSR po Raudelu Priborostroeniye, Vol VI, No 1, 1963, pp 118-126.

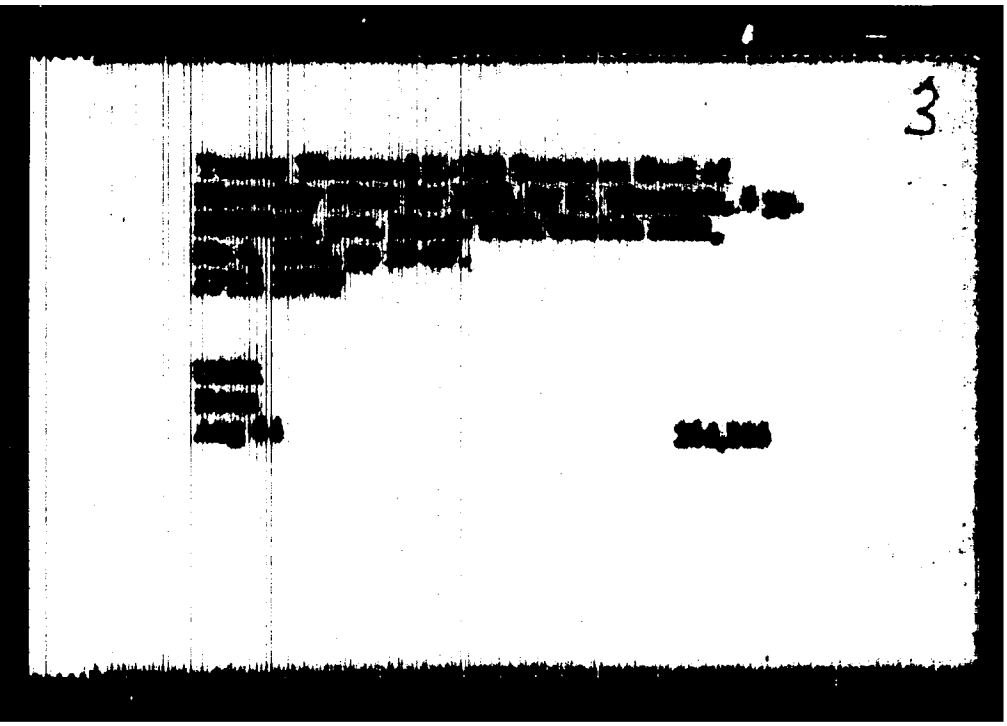
JPRS 20221

Sci - Electron
Jul 63

237,410

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4



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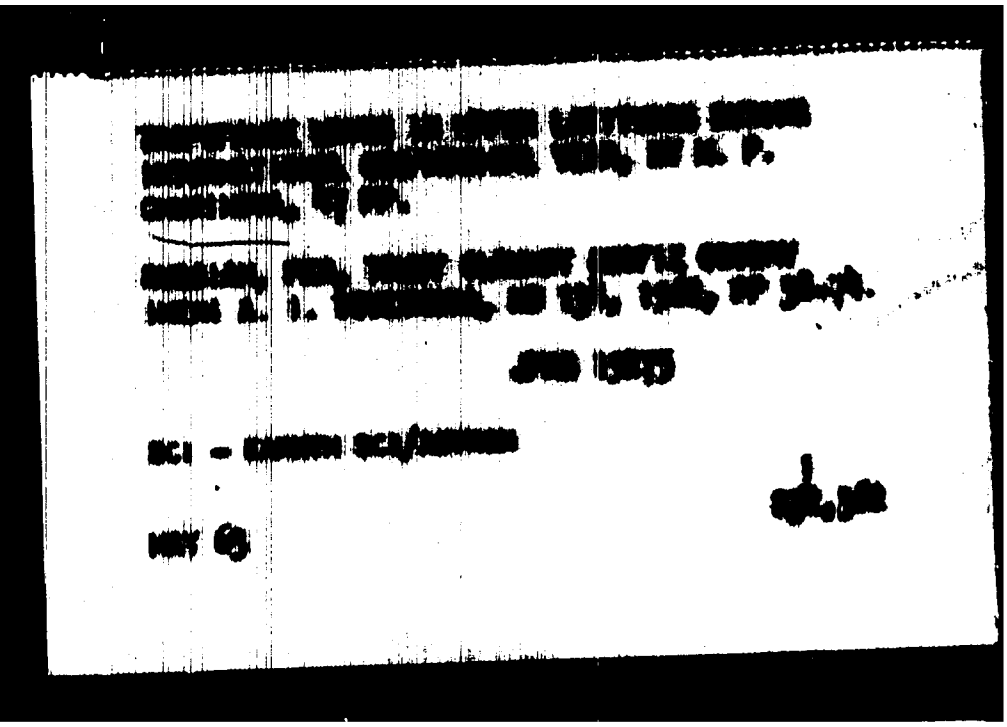
APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4



APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Experiment in Calculating the Coefficient of Turbulence From a Temperature-and-Wind Sounding, by M. P. Churinova, 9 pp.

RUSSIAN, per, Trudy Glavnoy Geofiz Observ imeni A. I. Voeikova, No 63 (125), 1956, pp 168-171.

ABC SCI-T-247

Sci - Geophys

Jun 59

90, 282

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Wave Structure in the Tropause Over High Latitudes Over the I.G.Y. Period, by M.P. Churinova.
RUSSIAN, per, Trudy Gl. Geofiz. Observ. No. 134, 1962, pp 38-74
NLL/$828.4 1963 (5 356) · loan).

Sci -
Aug 67

333-724

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

The Vital Problems in Combat and Special Training of the Military Medical Personnel, by V. I. Roslyakov, P. M. Churkin, 7 pp.

RUSSIAN, per, Voyenno-Med Zhur, No 8, 1955, pp 8-12, Encl to IR-1440-56, AFOIN-1A1. CIA D 498805.

AF 752450

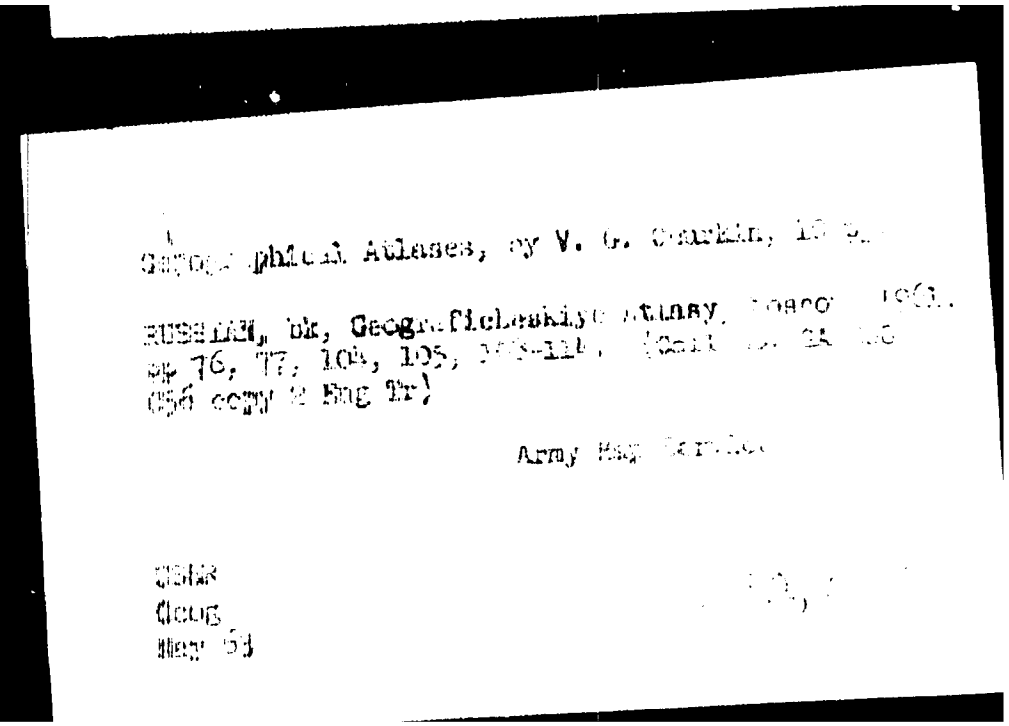
36,743

USSR
Sci - Medicine
Military

Jul 1956

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4



Geographical Atlases, by V. C. Finch, [illegible]

RUSSIA, Ukr, Geography-Pictorial Works, 1960, pp 76, 77, 104, 105, [illegible] (Card [illegible] 25 [illegible] copy 2 Eng Tr)

Army Map Service

USSR
Geog
May 61

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Drift Buoys in the Central Arctic and in the Arctic Seas, by N. A. Churkina. USCL

RUSSIAN, per, Problemy Severa, No 1, 1958, pp 337-340.

Navy 2761/HO 75

Sci - Geophysics
May 61

150,498

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Churkina, N. A.
THE DRIFT OF BUOYS IN THE CENTRAL ARCTIC AND IN THE ARCTIC SEAS, tr. by M. Slessers. [1959] [10]p. 4 refs. HO Trans. 75.
Order from LC or SLA mi$1.80, ph$1.80. 61-15952

Trans. of ["Problemy Severa"] (USSR) 1958, no. 1, p. 337-340.

Data are presented concerning buoys cast into the arctic seas from expedition vessels beginning in 1949, and recovered within the past 5 years. A diagram shows the assumed courses of drift.

(Earth Sciences - Oceanography, TT, v. 5, no. 11)

61-15952

1. Ocean currents - Arctic regions
2. Buoys - Arctic regions
I. Churkina, N. A.
II. HO Trans. 75
III. Navy Hydrographic Office, Washington, D. C.

Office of Technical Services

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Action of γ-Radiation on $NH_3 + C_6H_6$ and $CCl_4 + C_6H_6$ Compositions, by A. V. Zimin, S. V. Charmantsyev, A. D. Verin , 24 pp.

RUSSIAN, Sb, Sbornik Rabot Radiatsionnoi Khim, Ak Nauk SSSR, 1955, pp 249-260.

AEC Tr 2552

Sci - Chemistry
Jan 57 CTS

42, 196

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

An All-Union Conference on Combined I. C. Engines, by A. S. Orlin, M. M. Chvarin, 3 pp.

[illegible], per, Vest Mashinostroy, Vol XLI, No 6, 1961, pp 79-82.

FTD

Sci

201,612

Jun 62

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Effect of Small Additions of Zirconium, Titanium and Boron on the Structure and Properties of Silicon Iron, by V. M. Chursin, A. Ye. Zavgorodnii.

RUSSIAN. per, Lit Prolz, No 12, 1959. pp 35-37.

DSIR LIB M 2362
(loan)

Sci - Min/Met

Jun 61

156,887

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Chursin, V. M. and Zavgorodniy, A. Ya.
EFFECT OF SMALL ADDITIONS OF ZIRCONIUM, TITANIUM AND BORON ON THE STRUCTURE AND PROPERTIES OF SILICON IRON. [1961] [7]p. 7 refs. [DSIR LLU] M. 2362.
Order from LC or SLA mi$1.80, ph$1.80 61-15494

Trans. of Liteynoye Proizvodstvo (USSR) 1959, no. 12, p. 35-37.

The effect of the additions on silicon brass (not iron) was studied.

(Metallurgy, TT, v. 5, no. 12)

61-15494

I. Brass--Microstructure
I. Chursin, V. M.
II. Zavgorodniy, A. Ya.
III. DSIR LLU M. 2362

Office of Technical Services

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Maternal Inheritance in Intervarietal Hybridization of Maize, by A. E. Kovarskiy, Iu. P. Chursin.

RUSSIAN, bk, Kishinevskiy Sel.'skokhoziaistvennyi Institut imeni M. V. Frunze, 1955, Moscow, pp 106-126. CIA D 9006100

USDA

Sci. - Biology 43, 57/

Mar 57 CTB/dex

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

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Cover Atomic Energy Translation

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

(FDD 15380)

Selected Articles From "Work With Geodetic Instruments in Road Construction," Chapter III, Section 20, Theodolite 2T-2; Chapter IV, Section 26, Blind Level Instrument NG, by G. Ye Gamritsy, L. F. Churaina, 4 pp.

RUSSIAN, monograph, Rabota s Geodezicheskimi Instrumentami Na Dorozhnom Stroitel'stve, Moscow, 1952, pp 42, 43, 58-60.

CIA/FDD/U-5280

USSR

Sci - Engineering

9596 Jan 54

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

English Title Unknown, by Tadeusz Churski.
20 p.
POLISH, per, Wiadmosci Instytutu Melioracji
I Uzytkow Zielonych, Vol 4, No 2, 1964,
pp 71-90.
*CFSTI TT 66-57056

EE-Poland
Sci/Earth Sci
Feb 66

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

PHYTOESTROGENS, BY J. [redacted] CHURY, 9 PP.

CZECH, PRE, VETERINARSTVI, 1958, PP 341-344.

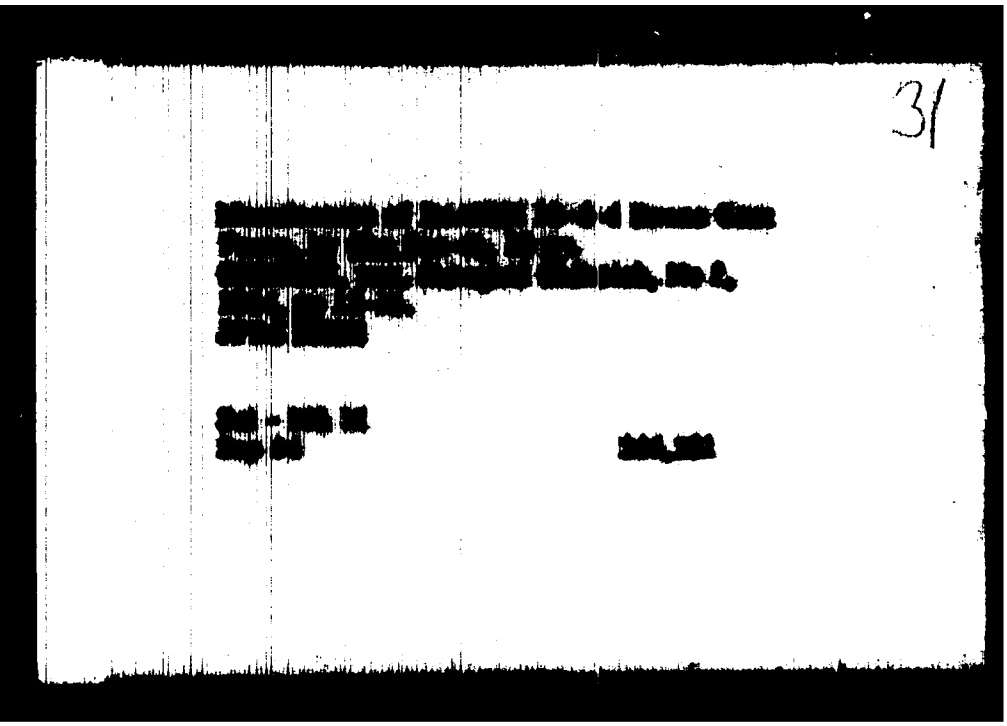
NIH 5-26-62

SCI - BIOL 207,914

AUG 62

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4



APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Thermal Stability of High Polymers, by
Cui Hsue-sung, 22 pp.
Chinese, per, Hua-hsueh Tung-pao, No 12,
Dec 1954, pp 12-20
JPRS 2037

FE-China
Sci-Chem
Hap 65

20,3

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

The Welding of Steel Kh5M Tubes, by A. G. Mazel, L. S. Livshitz, M. Ya. Chushenkova,

RUSSIAN, per, Avto Delo, Vol XXIII, No 7, 1952.

B.S.A Res Group
OT/1323

Sci - Engineering, [redacted]

30,073

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

53

Formation and Destruction of Thermal Wind in a Simple Baroclinic Atmosphere, by C. Chu-Chih.
CHINESE, per. Ch'i-hsiang Hsueh-Pao,
Vol 33, No 2, 1963, pp 153-163.
NLL Refs 7775.725 1965 (EDM 65-22)

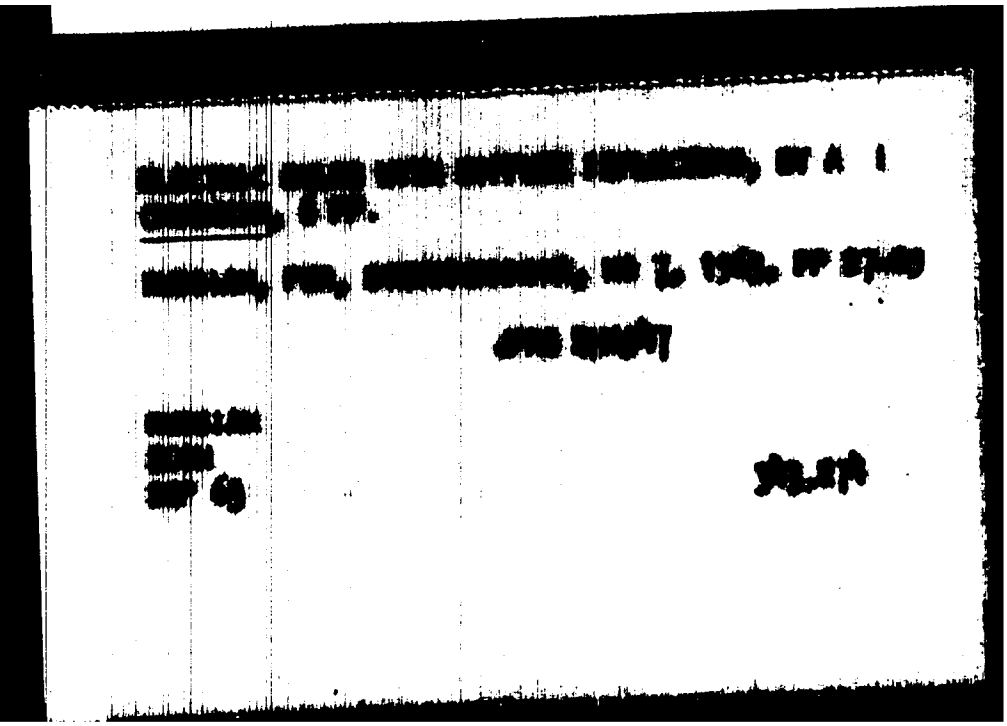
C Chu-Chih

Sci-E Sci
June 65

303,918

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4



APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Supersonic Flow Past Blunt Bodies by O. M. Belotserkovskiy and I. P. Chushkin,

31 pp.

POLISH, per, Archiwum Mechaniki Stosowanej, Vol XIV, No 3/4, 1962, pp 461-487. 9688856

FTD-TT-63-211

Sci-Aero
Nov 63

242, 282

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

77
144

Numerical Solution of Some Problems of Gas Flows, by P. I. Chushkin, 27 pp.
POLISH, per. Archiwum Mechaniki Stosowanej, Vol XVI, No 3, 1964, pp 577-590, 0230 244.
Abst: BGT-64-736

Sci-Economics & Data Processing
Nov 64

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Chushkin, P. I.
COMPUTATION OF SUBSONIC FLOW OF GAS PAST ARBITRARY PROFILES AND BODIES OF REVOLUTION (THE SYMMETRIC CASE). [1962] 18p. 6 refs.
Order from OTS or SLA $1.60 62-16391

Trans. of Vychislitel'naya Matematika (USSR) 1958, no. 3, p. 99-110.

DESCRIPTORS: Measurement, *Subsonic flow, *Numerical methods and procedures, *Gas flow, *Axially symmetric flow, *Bodies of revolution, Fluid dynamic properties.

In this paper we are concerned with the approximate computation of subsonic flow past a symmetric profile and body of revolution with zero angle of incidence of flow. Computations are carried out on the basis of a numerical method advanced by the member of academy (Mechanics--Aerodynamics, TT, v. 9, no. 10) (over)

62-16291

I. Chushkin, P. I.

Office of Technical Services

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Chushkin, P. I.
SUBSONIC FLOW OF A GAS PAST ELLIPSES AND ELLIPSOIDS (Obtekanie Ellipsov i Ellipsoidov Dozvukovym Potokom Gaza). [1962] [57]p. (foreign text included) 12 refs.
Order from OTS or SLA $5.60 62-16095

Trans. of Vychislitel'naya Matematika (USSR) 1957, no. 2, p. 20-44

DESCRIPTORS: *Gas flow, *Subsonic flow, Numerical analysis, Bodies of revolution, Ellipsoids, Aerodynamics, Boundary layer.

The integral relation method of A. A. Dorodnytsin, which consists of reducing nonlinear two-dimensional problems to numerical integration of systems of ordinary differential equations, are used to compute the subsonic flow of gas past ellipses and ellipsoids of revolution. Trial computations on the Besm com-
(Mechanics--Aerodynamics, TT, v. 8, no. 9) (over)

62-16095

I. Chushkin, P. I.

[illegible]

Office of Technical Services

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

The Numerical Method of Integral Relations, by O. M. Belotserkovskiy, P. I. Chushkin.

RUSSIAN, per, Zhur Vychislitel Matemat i Matemat Fiz, Vol II, No 5, 1962, pp 731-759.

NASA TT F-8356

Sci
Apr 63
UR GOV'T ONLY

229,208

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Calculation of Certain Conical Flows Without Axial Symmetry, by P. I. Chushkin, V. V. Shcheennikov.

RUSSIAN, per, Insh-fiz Zhur, Vol III, No 7, 1960, pp 88-94.

RAE 926

167868

Sci - Phys

Sep 61

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Investigation of Flow Past Bodies of Revolution at Supersonic Speed, by P. I. Chushkin, 38 pp.

RUSSIAN, per, Zhur Vychislitel'noy Matemat i Matemat Fiz, Vol II, No 2, 1962, pp 255-277.
9669389

FTD-TT-62-1582

Sci-Phys
July 63

236059

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Supersonic Flow Around Blunted Bodies of Simple Shape, by P. I. Chushkin, 7 pp.

RUSSIAN, per, Prik Matemat i Mekh., Vol XXIV, No 5, 1960, pp 927-930.

PP

CIA/FDD XX-1272

Sci NOT RELEASABLE TO FOREIGN NATIONALS

USIB USE ONLY 16/153

Jun 61 INTERNAL

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Calculation of Certain Sonic Flows of a Gas, by P. I. Chushkin. USCL

RUSSIAN, per, Prik Mat i Mekh, Vol XXI, No 3, 1957, pp 353-360.

RAE 816

Sci - Phys
Sep 59

96,778

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Chushkin, P. I. and Shulishnina, N. P.
SUPERSONIC FLOW AROUND BLUNT CONES: TABLES
[1962] 46p. 8 refs.
Order from MDF $9.50

Trans. of mono. Tablitsy Sverkhzvukovogo Techeniya Okolo Zatuplennykh Konusov, Moscow, 1961.

DESCRIPTORS: *Blunt bodies, Conical bodies, Aerodynamic configurations, Supersonics, *Supersonic flow, *Tables.

(Mechanics--Aerodynamics, TT, v. 9, no. 6)

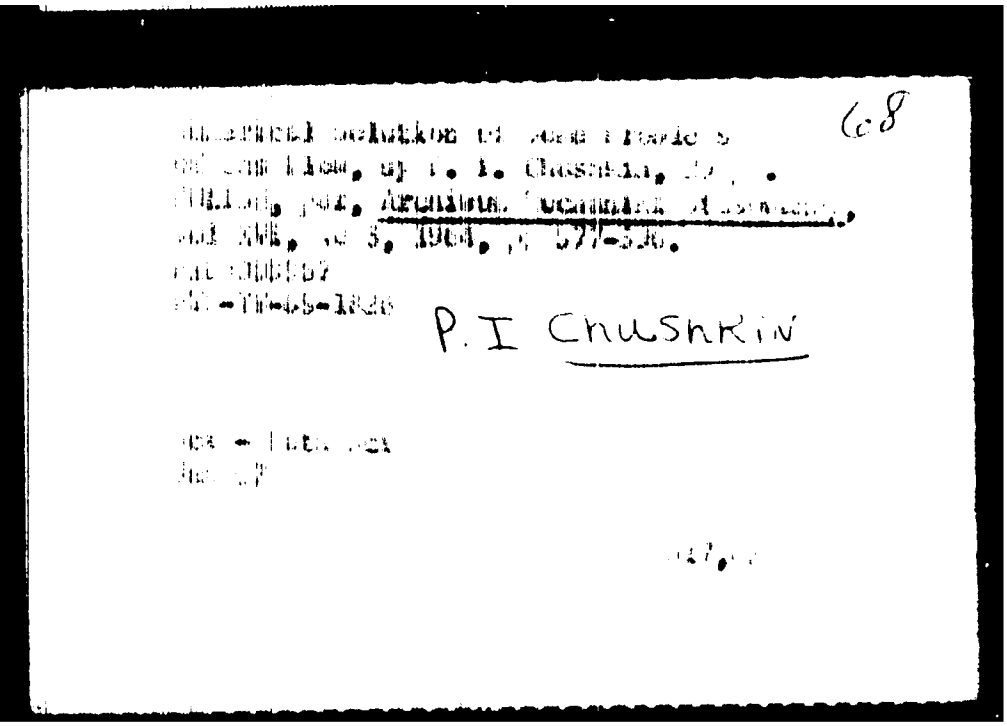
63-12574

I. Chushkin, P. I.
II. Shulishnina, N. P.
III. Friedman, Morris D., San Jose, Calif.

Office of Technical Services

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4



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P. I Chushkin

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Fluorescent Spectral Analysis of the Products
of Tobacco Smoke, by P. P. [illegible]
Chashchin, 5 pp.

RUSSIAN, per, Voprosy Onkologii, Vol V, No 6,
1959. pp 34-37.

FP

Sci
Aug 60

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Di (2-chloroethyl) amino Derivatives of Tyrosine.
I. Synthesis of 3-Di(2'-chloroethyl) amino-4-methoxyphenylalanine.
By I. Sal'nichiu, G. Chushtya pp. 5

RUSSIAN, per, Zhur Obshch Khim, Vol XXXII,
No 8, 1962, pp. 2464-2468

CB 340,711

Sai

Jul 63

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Chuaid, S. D.
THE GRAIN DISINTEGRATION PROC[illegible] PTS. 1-3.
16 Feb 60, 13p.
Order from SLA $1.60 63-14864

Trans. of die Getreidemühle (East Germany) 1957, [v. 1] no. 7, p. 146-149.

DESCRIPTORS: *Wheat, *Cereals, Structural properties, Mechanical properties, Measurement, *Rolling mills.

Contents:
General
The structural mechanical properties of wheat grain
Influence of the main measurement of the rollers.

(Agriculture, TT, v. 10, no. 5)

63-14864

1. Chuaid, S. D.

A242753

[illegible] of Technical Services

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Chusid, S. D.
THE GRAIN DISINTEGRATION PROCESS PT. 4: THE KINETIC OF THE GRAIN DISINTEGRATION.
[1963] 11p.
Order from SLA $1.60 63-14863

Trans. of die Getreidemühle (East Germany) 1957, [v. 1] no. 8, p. 170-173.

DESCRIPTORS: *Cereals, *Wheat, *Rolling mills, Dynamics, Surface properties.

The results of this research work permits the determination of optimal kinetic parameters for the rollers, the advance calculation of the required disintegration degree for each system, and the sizes of the capacity required for the drive of the rollers. Since the characteristics, concerning the corrugation were determined not only for standard wheat with 56% (Agriculture, TT, v. 10, no. 5) (over)

63-14863

1. Chusid, S. D.
II. Title: Kinetic . .

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Office of Technical Services

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Influence of the Filling of Shock Struts Upon Operation of Landing Gears, by Engr T. V. Chutkerashvili, 6 pp.

RUSSIAN, mo per, Vest Voz Flota, No 4, 1956, pp 61-64. Encl to IR-1086-57, AFOIN-1A1

AF 1071955
ATIC-F-TS-7036

Sci - Aeronautics
Mar 57 CTS/dex

44,703

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Effect of a Magnetic Field on Phenomena In a Diode With Cesium Vapors by M. D. Morgulis and Yu. I. Chutov, 16 pp.

UKRAINIAN, pur, Ukrains'kiy Fizichniy Zhurnal, Vol 7, No 9, 1963, pp 1003-1012. 9686801

FSTC-TT-63-371

Bnl - Phys

344,074

Sept 63

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

SOME PHYSICAL FEATURES OF THERMOELECTRIC ENERGY CONVERSION, BY N. D. MORGULIS, YU. P. KORCHEVOY, YU. I CHUTOV, 6 PP.

RUSSIAN, PER, ZHUR TEKH FIZ, VOL XXXI, NO 7, 1961, PP 845-853.

AIP
SOV PHYS-TECH PHYS
VOL VI, NO 7

SCI
FEB 62

163,014

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Chuvaev, A. P.
DATA ON THE TEMPERATURE OF CRYSTALLIZATION OF THE TOPS OF CUMULUS CONGESTUS CLOUDS IN DIFFERENT PHYSICOGEOGRAPHICAL REGIONS. [1961] 7p.
Order from ATS $15.15 ATS-40N52R

Trans. of Glavnaya Geofiz[icheskaya] Observatoriya [Leningrad]. Trudy (USSR) 1960, no. 104 [166] p. 39-45.

DESCRIPTORS: *Cumulus clouds, Crystallization, Temperature, Geophysics.

(Earth Sciences--Meteorology, TT, v. 1, no. 7)

61-25051

I. Chuvaev, A. P.
II. ATS-40N52R
III. Associated Technical Services, Inc., East Orange, N. J.

Office of Technical Services

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

A Guide to the Control of Pests and Diseases of Agricultural Plants, by V. S. Chuvakhin.

RUSSIAN, Moskva, 1945. 496 pp, 464.4 Ch72.
Translated in part: Table of Contents

USDA Trans No 139

USSR
Scientific - Biology, plant protection, disease
Economic - Agriculture, plant, protection

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Guide to the Control of Pests and Diseases of Agricultural Plants, by V. S. Churakhin.

RUSSIAN, Ed 5, Moskva, 1945, 464-472.

Translated in part: p 463-469.
See also Trans 139,183, 187.

USDA Trans No 102

USSR
Scientific - Biology, plant protection
Economic - Agriculture, plant protection

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

A Guide to the Control of Pests and Diseases of Agricultural Plants, by V. S. Churakhin.

[illegible], 56 p Moskva, 1945, 46h.[illegible]72

USDA Trans No 187

USSR
Scientific - Biology, plant protection
Economic - Agriculture, plant protection

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

A Guide to the Control of Pests and Diseases of Agricultural Plants, by V. S. Chevakhin.

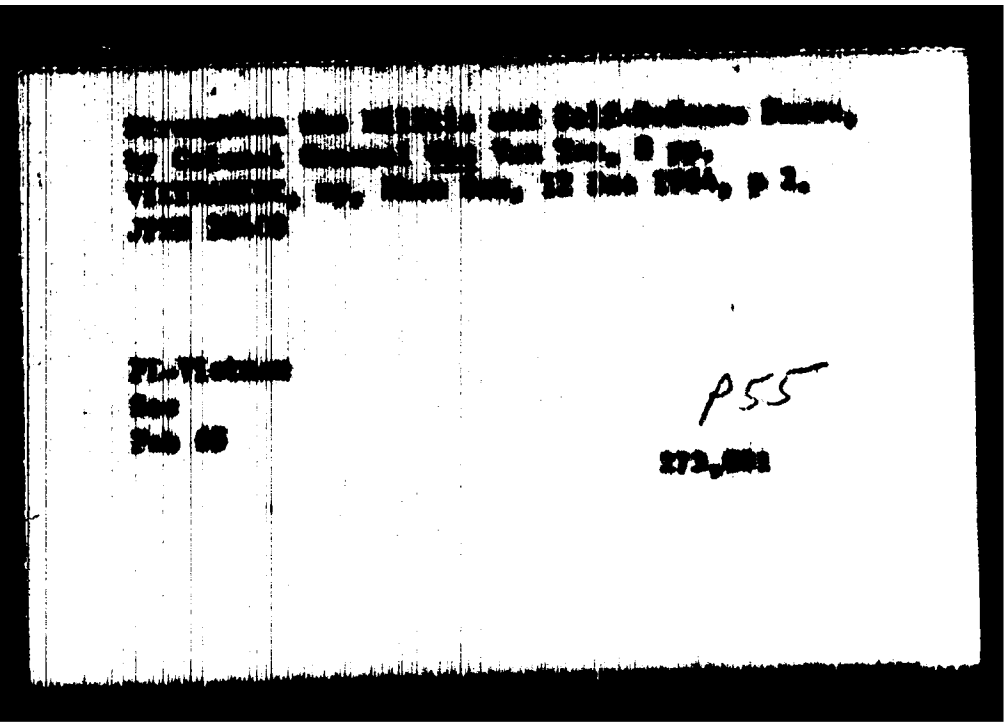
RUSSIAN, Ed 5, Moskva, 1945, 464.4 C72.

USDA Trans No 183

USEI:
Scientific - Biology, plant protection
Economic - Agriculture, plant protection

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4



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APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

117

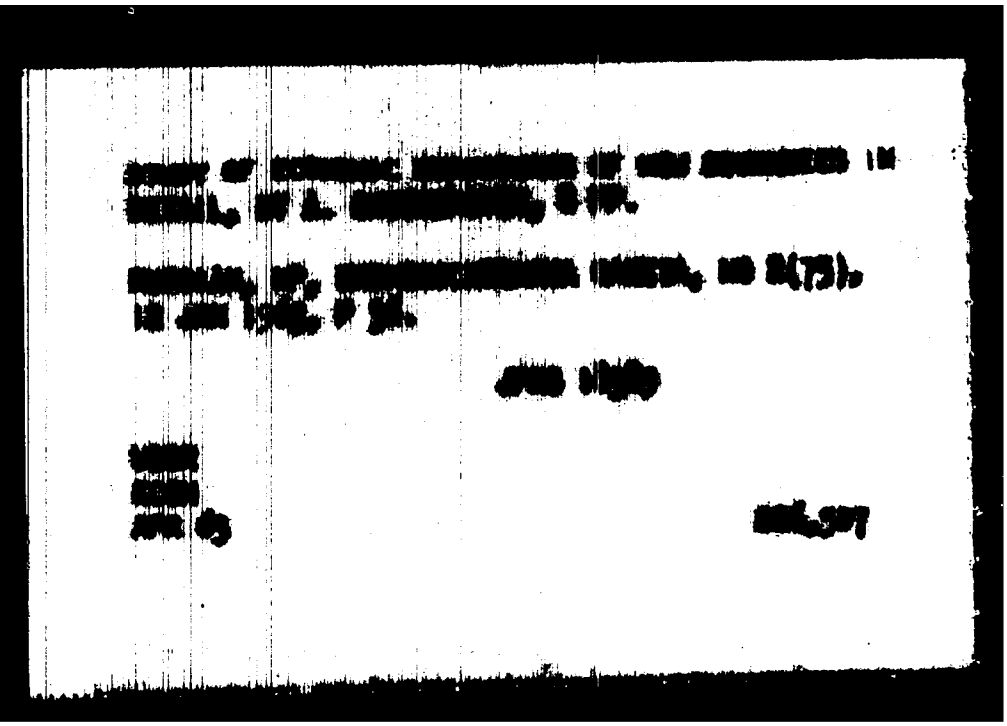
Ion Exchange and its Applications.
by K. V. Chmutova.
RUSSIAN, bk, 1959.
NLL R. 17253

Sci-Chem
June 66

301,445

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4



APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Electrodynamic Acceleration of Plasma Bunches, by L. A. Artsimovich, S. Yu Luk'ianov, I. M. Podgornyi, S. A. Chuvatin, 5 pp.

RUSSIAN, per, Zhur Eksper i Teoret Fiz, Vol XXXIII, No 1, 1957, pp 3-8.

Amer Inst of Phys
Sov Phys-JETP
Vol X VI, No 1

Sci - Phys
May 58

62,764

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Chuvaev, A. P.
INVESTIGATION OF THE WATER RESOURCES OF CLOUDS DURING THE WARM HALF-YEAR IN THE BASIN OF LAKE SEVAN. [1961] 8p.
Order from ATS $14.25 ATS-43N52R

Trans. of Glavnaya Geofiz[icheskaya]Observatoriya [Leningrad]. Trudy (USSR) 1960, no. 104[166]p. 68-74.

DESCRIPTORS: *Clouds, Moisture.

(Earth Sciences--Meteorology, TT, v. 6, no. 6)

61-25044

I. Chuvaev, A. P.
II. ATS-43N52R
III. Associated Technical Services, Inc., East Orange, N. J.

Office of Technical Services

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Chuvashov, B. I.
CONTRIBUTION TO THE ECOLOGY OF LATE FRASNIAN FORAMINIFERA AND ALGAE. [1964] 8p
Order from ATS $9.90 ATS-44Q73R

Trans. of Paleontol[ogicheskii] Zh[urnal] (USSR) 1963, no. 3, p. 3-9.

(Biological Sciences, TT, v. 11, no. 12)

TT-64-12675

I. Chuvashov, B. I.
II. ATS-44Q73R
III. Associated Technical Services, Inc., East Orange, N. J.

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APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

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CONTRIBUTION TO THE ECOLOGY OF LATE FRASNIAN FORAMINIFERA AND ALGAE. [1964] 8p
Order from ATS $9.90 ATS-44Q73R

Trans. of Paleontol[ogicheskii] Zh[urnal] (USSR) 1963, no. 3, p. 3-9.

(Biological Sciences, TT, v. 11, no. 12)

TT-64-12675

I. Chuvashov, B. I.
II. ATS-44Q73R
III. Associated Technical Services, Inc., East Orange, N. J.

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Office of Technical Services

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

6-4529 (RT-1809)

Modern Possibilities for Preventing Storms and Hail, by A. P. Chuvayev, 37 pp.

RUSSIAN, per, Trudy Glavnoy Geofiz Observ imeni A. I. Voyeykova, No 74, Leningrad, 1957, pp 71-102.

US JPRS/DY-[illegible]7

Sci - Geophysics

Nov 58

76,473

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

(FDD 26218)

Principle Mechanism Governing the Electrification of Storm Clouds, by ~~XMX~~ I. M. Imyanitov, A. P. Chuvayev, 7 pp.

RUSSIAN, bimo per, Meteorol i Gidrol, No 4, Leningrad, Jul/Aug 1955, pp 34-36.

CIA/FDD/U-7883

32,357

USSR
Sci - Geophysics, meteorology

Feb 1956 CTS

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Concerning the Features of a Methodology
of "Dry Ice" Upon Convective Clouds with
Purpose of Causing Precipitation in Them
Chavagyev, 16 pp.

[illegible], Trudy Glavnoy Geofiz[illegible]
No 72, 1957, pp 110-117.

ATIC F-TS-9[illegible]

Sci - Geophys
Jun 61

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

Preliminary Data on Experiments for Controlling The Development and the Change in the Electrical State of Strongly Convective Clouds in the Southern Regions of European USSR, and in the Transcaucasus, by I. M. Imyanitov, M. M. Kulik, A. P. Chuvayev, 23 p.

RUSSIAN, per, . Trudy Glavnaya Geofiz Observatoriya 1957, No 67 , (129), pp 33-58.

AMS-58L34R 111,682

Sci Apr 60 Vol XII, No 2

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

S-325/60

Thermal Boundaries of the Initial Crystallization of Clouds, by A. P. Chuvayev, 7 pp

RUSSIAN, per, Met i Gid, No 3, 1960, pp

JPRS 3592

Sci - Geophys, Meteorology

Aug 60

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

(FTD 28431)

On the Role of Retaining Layers in Permitting Precipitation, by G. T. Milnadrova, A. P. [illegible], 14 pp.

RUSSIAN, mo per, Meteorol i Gidrol, No 4, Leningrad, Apr 1956, pp 12-18.

CIA/FTD U-9047

40,557

USSR
Sci - Geophysics
Oct 56 CHS

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

APPROVED FOR RELEASE: Wednesday, August 14, 2002 CIA-RDP91-00772R000301750017-4

An Experiment in Controlling the Development of Strongly Convective Clouds in Northwestern European USSR, by A. P. Chuvayev, 37 pp.

RUSSIAN, per, Trudy Glavnaya Geofiz Observ No 67 (129), 1957, pp 59-103.

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